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JOURNAL, by his descriptions of the various diseases to which our forest and fruit trees are subject. Of the thirteen chapters, seven are devoted to the descriptions of the modes of growth of specific fungi which have, from their abundance and destructive nature, attracted the attention of tree growers.

Those which receive considerable attention, are the following :

Trametes radiciperda, Htg., the principal cause of "wet rot" or "red rot" of timber; *Agaricus melleus*, Secr.; *Polyporus sulphureus*, Scop.; *P. vaporarius*, Krombh., and *Merulius lacrymans*, (Jacq.) Fr., causing conjointly "dry rot;" *Peziza Willkomii*, Htg., pathogenetically connected with the larch disease or "canker;" *Coleosporium senecionis*, (Fr.) Pers. (*Peridermium pini*) the cause of the "pine blister;" and *Phytophthora omnivora*, DBy., which produced the "damping off" of young seedlings. The author has endeavored in the descriptions of these diseases to put the whole matter in such language that those unacquainted with the terms of cryptogamic botany may understand, and has devoted a large portion of each chapter to the dangers from these parasites and the most reasonable methods of avoiding such.

While chapter IV, on the theories advanced to explain the ascent of water in tall trees, is perhaps too technical to harmonize well with the other chapters, it will be found one of the most interesting because it brings together in comparison for the first time in any English work, all the prominent theories, old and new, in regard to sap ascension in forest trees.

The well-known theory held by Sachs that the sap ascends through the substance of the cell walls by reason of an extraordinary activity inherent in imbibed fluid, the author is willing to abandon for Hartig's and Godlewskii's osmosis pressure theory which takes refuge in the respiration of protoplasm to furnish the lifting force. According to the views of these investigators the sap ascends by means of the tracheids of the alburnum, and is drawn or forced upwards by a periodic change which the adjacent cells of the medullary rays undergo, by reason of which they alternately absorb water from the tracheids below and expel it into those above.

The remarks upon the healing of wounds by occlusion contain many warnings against the habit altogether too common among fruit-growers and foresters, of allowing freshly broken or cut surfaces of growing trees to remain exposed to the dangers so imminent, from the hosts of parasitic fungi which only await such opportunity to gain a foothold in the tree. As might be expected, repeated references to the work of Hartig and other investigators are met with; but, throughout, the book is well worthy attention.—D. G. F.

SWINGLE, W. T. *A List of the Kansas Species of Peronosporaceæ.*

Transactions of the Twentieth and Twenty-first Annual Meetings of the Kansas Academy of Science (1887-'88). Vol. XI, p. 63.

This State list, the largest one yet published we believe, containing 32 species of *Peronosporææ*, a family acknowledged to flourish best in a

moist climate with frequent showers, is remarkable as coming from a place of scanty rain-fall and long summer droughts. The author adopts for his classification that first used by Schröter and repeated by Berlese and De Toni in Saccardo's *Sylloge Fungorum*, giving for convenience translations of the descriptions of family, genera, and sub-genera.

Two new species, *Peronospora hedeomæ*, K. & S., *P. cynoglossi*, Burrill, and a new variety of the latter, *P. cynoglossi*, var. *echinospermi*, Swingle, are quite fully described; measurements of 100 conidia and 25 conidio-phores being given to establish the authenticity of the variety. Although it is to be regretted that there are no remarks upon the relation of this family to the atmospheric humidity it is interesting to note that the author finds only the following species as passing the winter in seed-ing plants: *P. arenariæ*, var. *macrospora*, *P. Arthuri*, *P. corydalis*, *P. parasitica*, *P. hedeomæ*, and *P. candida*.

The reference to an examination of every specimen for oospores as well as the carefully prepared synonymy show the work to be of the highest order. One or two changes in the authorities of some of the common species may attract attention but will be found to be well supported by the law of priority, such as *Cystopus amaranti*, (Schw.) Berk and *Peronospora parasitica*, (Pers.) Fries.

The addition of the localities from whence specimens have been obtained together with other convenient helps make the paper a very valuable one to State collectors.—D. G. F.

INDEX TO NORTH AMERICAN MYCOLOGICAL LITERATURE.

BY DAVID G. FAIRCHILD.*

1. DUDLEY, W. R. Notes on investigations now in progress (with figures). Second Annual Report of Cornell Ag. Ex. Sta., 1889. Issued February 15, 1890. I. The onion mold (*Peronospora Schleideniana*, DBy.). II. Anthracnose of currants (*Glæosporium ribis*, (Lib.) Mont. and Desm.). III. Leaf-blight of quince and pear (*Entomosporium maculatum*, Lév.)

*In addition to the reviews of recent foreign articles as published in the past we propose in the future to give an index to the North American Mycological Literature, endeavoring so far as possible to bring the information down to the time each issue of the Journal goes to print. In order to facilitate the work we shall be greatly obliged if the botanists will give us notice of any articles of a mycological nature contributed by them to other than the current scientific publications; and also in giving such information to state the exact date of publication. As Experiment Station bulletins and annual reports are seldom dated exactly, it will be a great convenience if botanists will kindly state in sending their reports to us the time at which they were ready for distribution. The work will be in charge of Mr. David G. Fairchild to whom all publications and communications bearing upon the subject should be addressed.—B. T. G.